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| 09/989,605 | 11/20/2001 | Jack P. Glas | Glas 7-6 | 1554 |
| 23506 | 7590 | 08/08/2005 | EXAMINER | |
| GARDNER GROFF, P.C. 2018 POWERS FERRY ROAD SUITE 800 ATLANTA, GA 30339 | | | TRAN, KHAI | |
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DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,605

Applicant(s)

GLAS ET AL.

Examiner

KHAI TRAN

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8-52 and 54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-30 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8-10,31-38 and 48 is/are rejected.
- 7) ☒ Claim(s) 11-15,39-47,49-52 and 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 5/20/2005 has been entered. Claims 3, 7 and 53 have been cancelled. Claims 1-2, 4-6, 8-52, 54 are pending in this Office action.

Claim Objections

2. Claim 54 is objected to because of the following informalities: Appropriate correction is required.

Claim 54 is objected because the claim depends on the cancelled claim 53.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olgaard et al (U.S. Pat. 6,683,919).

Regarding claims 1, 4, Olgaard et al disclose an intermediate frequency sampling architecture as shown in Figure 2, comprising: a modulator for receiving an input signal and modulating the input signal to an intermediate frequency (a RF mixer 6); a first filter (an IF SAW filter 7) for receiving the intermediate frequency signal and passing the intermediate frequency signal through a filter having a bandpass characteristic, producing a filter signal; an I/Q sampler, the I/Q sampler receiving the filtered signal, and providing the filtered signal with increased selectivity (an IF image reject mixer 10 which receives an intermediate frequency signal from VCO 9 for performing delaying one component of the signal for one clock period by the VCO 9 and adding the two components back together by an adder (+/- 45°); and an A/D converter (13) for converting the analog signal to the digital signal. Olgaard et al fail to explicitly disclose the quantizer for receiving the filtered signal and digitizing the filtered signal. However; the quantizer is well known in the analog to digital conversion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to quantize the filtered signal in the analog to digital converter in the teaching of Olgaard et al in order to convert the filtered signal to digital format for subsequent processing.

Regarding claim 2, Olgaard et al also disclose a second filter (a filter 1 and IF filter 8) for receiving the input signal and filtering the input prior modulating the input signal to an intermediate frequency.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 5-6, 8, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogaard et al (U.S. Pat. 6,683,919).

Regarding claim 5, 8, Ogaard et al disclose a radio as shown in Fig. 2, comprising: a first filter (1) for receiving a input signal, wherein the first filter has a transfer function characterized by steep selectively and narrow bandpass range and producing a first filtered signal; an intermediate sampling architecture for receiving an input signal (IF image reject mixer 10 which receives an intermediate frequency signal from VCO 9 for performing delaying one component of the signal for one clock period by the VCO 9 and adding the two components back together by an adder (+/- 45°) for modulating the first filtered signal to an intermediate frequency signal and producing a second signal and digitizing the second filtered signal (A/D converter 13); and a baseband converter for converting the digitized signal to a baseband signal (col. 11, lines 23-60).

Regarding claim 6, Ogaard et al disclose an amplifier (LNA 2) for receiving the output of the first filter (1).

Regarding claim 10, Ogaard et al disclose wherein the conversion to the second intermediate frequency prior to the second filter is a modulation accomplished by multiplying the output of the amplifier by a second local oscillator signal (9).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogaard et al (U.S. Pat. 6,683,919) in view of Belotserkovsky et al (US 2003/0053571 A1).

Regarding claim 9, Ogaard et al disclose the radio as shown in Fig. 2, further comprising: an antenna (Fig. 1) for receiving an input signal; a low noise amplifier (2) for amplifying the input signal; a bandpass filter (3) for receiving the amplified input signal; a multiplier (6) for receiving the output of the bandpass filter and multiplying the output of the bandpass filter with a first local oscillator (5). Ogaard et al fail to explicitly disclose the antenna receiving the input signal via radio frequency in at least IEEE 802.11a or HiperLAN/2 format.

Belotserkovsky et al disclose that the received transmission conform to the HiperLAN/2 (Europe) and/or the IEEE 802.11a (U.S.) wireless LAN standards. It would have been obvious to one having ordinary skill in the art at the time invention was made to apply the radio local area network (HiperLAN/2 and IEEE 802.11a) as taught by

Belotserkovsky et al into the teachings of Oggard et al in order to conform to any suitable protocols or standard format in the OFDM receiver.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 31-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Olgaard et al (U.S. Pat. 6,683,919).

Regarding claim 31, Olgaard et al disclose a method for intermediate frequency sampling, comprising: receiving an input signal (Fig. 2), modulating (6) the input signal to produce an in-phase and quadrature phase signal; filtering the intermediate frequency in-phase and quadrature phase signal in a complex filter (7); adding the in-phase and the quadrature phase filter signals, yielding a result signal (10); digitizing the result signal, sampling at four times the intermediate frequency (A/D converter 13, see col. 2, lines 29-47).

Regarding claim 32, Olgaard et al disclose that the step of filtering the input signal (the filter 3) prior to modulating the filtered input signal (the modulation 10) to an intermediate frequency.

Claims 34-38 are similar to claims 31-32. Furthermore, Olgaard et al also disclose step of filtering the input signal in a first filter having a responsive characterized by a steep selectively and a narrow bandpass (a band select filter 3 and an IF filter 7)

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 48 is rejected under 35 U.S.C. 102 (2) as being anticipated by Olgaard et al (U.S. Pat. 6,689,919).

Regarding claim 48, Olgaard et al disclose a radio system having a receiver, comprising: a means for first filtering an input signal (1 and 3); means for modulating the filtered signal to a second intermediate frequency (10); means for second filtering of the second intermediate frequency signal (11); means for adding the in-phase and quadrature phase component result of the second filtering means together (an adder (+/-45°) in modulation 10); an I/Q sampling means for providing increased selectively to the resulting signal prior to the quantizing means (an IF image reject mixer 10 which receives an intermediate frequency signal from VCO 9 for performing delaying one component of the signal for one clock period by the VCO 9 and adding the two components back together by an adder (+/- 45°); means for quantizing the result of the

adding means (A/D conv. 13); means for transforming the quantized signal into a wanted baseband data signal (col. 2, lines 37-54).

Allowable Subject Matter

11. Claims 16-30 are allowed.
12. Claims 11-15, 39-47, 49-52, 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: Olgaard et al fail to disclose a third modulator and fourth modulator for receiving the digital signal and converting it to a baseband in-phase signal and baseband quadrature signal, third amplifier amplifying the output of the eighth modulator to transmission power; an eighth filter receiving the output of the third amplifier.

Response to Arguments

14. Applicant's arguments with respect to claims 1-2, 4-6, 8-52, 54 have been considered but are moot in view of the new ground(s) of rejection.

The new ground rejection has been illustrated above.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lam et al (U.S. Pat. 5,937,013) disclose sub-harmonic quadrature sampling receiver design.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KHAI TRAN
Primary Examiner
Art Unit 2637

KT
August 5, 2005